

AMENDMENTS TO THE CLAIMS

Claims 1-21. (Canceled)

22. (Original) A radiological imaging apparatus comprising:

a plurality of radiation detectors for detecting γ -rays; and

a counter that uses the γ -ray detection signals output from three or more of said plurality of radiation detectors within a preselected period of time and the positional information about said three or more radiation detectors that have output the γ -ray detection signals, so as to determine which of said three or more radiation detectors have detected unscattered γ -rays in said radiation detectors.

23. (Original) A radiological imaging apparatus comprising:

a plurality of radiation detectors for detecting γ -rays emitted from a subject to which a radiopharmaceutical is administered; and

a counter that, when γ -ray detection signals are output from three or more of said plurality of radiation detectors within a preselected period of time, uses the positional information about at least two of said radiation detectors, the energy detection values of at least two of said radiation detectors, and the positional information about radiation detectors that have detected one of a pair of said γ -rays, so as to determine the attenuation sequence, initial incidence position, and initial incidence direction of the remaining one of said pair of γ -rays.

24. (Original) The radiological imaging apparatus according to claim 23, wherein said attenuation sequence, said initial incidence position, and said initial incidence direction are determined by checking two or more different attenuation sequences of one of said γ -rays, which can be estimated from the positional information about radiation detectors that have detected one of said γ -rays and radiation detectors

that have detected the other one of said γ -rays, and selecting a sequence exhibiting a proper relationship between the scatter angle and energy detection value of one of said γ -rays.

25. (Original) A radiological imaging apparatus comprising:

- a plurality of radiation detectors for detecting γ -rays;
- collimators positioned in front of said plurality of radiation detectors to permit γ -ray passage; and
- a counter that, when detection signals are output from three or more of said plurality of radiation detectors within a preselected period of time, uses the positional information about three or more of said radiation detectors and the energy detection values of three or more of said radiation detectors in order to determine the attenuation sequence, initial incidence position, and initial incidence direction of said γ -rays.

26. (Original) The radiological imaging apparatus according to claim 25, wherein said attenuation sequence, said initial incidence position and said initial incidence direction are determined by checking two or more different attenuation sequences of said γ -rays, which can be estimated from said positional information, and selecting a sequence exhibiting a proper relationship to said energy detection value.

27. (Original) The radiological imaging apparatus according to claim 26, wherein the initial incidence position of said γ -rays is determined in accordance with said selected proper attenuation sequence, and then the determined initial incidence position and said energy detection value are used to determine the initial incidence direction of said γ -rays.

28. (Original) The radiological imaging apparatus according to claim 22, wherein said plurality of radiation detectors are arranged in the form of a ring while a

number of said plurality of radiation detectors are arrayed in the axial direction and in multiple layers in the radial direction.

29. (Original) The radiological imaging apparatus according to claim 28, further comprising a γ -ray discriminator that outputs a pulse signal upon receipt of a γ -ray detection signal input from said radiation detector.

30. (Original) The radiological imaging apparatus according to claim 29, wherein said counter outputs the positional information about said determined radiation detector and the count information about said pulse signal.

31. (Original) The radiological imaging apparatus according to claim 30, further comprising a tomogram generator for generating tomogram data in accordance with the positional information about said radiation detectors and said count information and a display device for displaying said tomogram data.

32. (Original) The radiological imaging apparatus according to claim 22, further comprising a tomogram generator for generating tomogram data in accordance with the positional information about said determined radiation detector and the γ -ray detection signal output from said determined radiation detector.

33. (Original) The radiological imaging apparatus according to claim 28, further comprising an X-ray source for emitting X-rays.

34. (Original) The radiological imaging apparatus according to claim 33, further comprising a signal discriminator for discriminating the detection signals for γ -rays and X-rays that are detected by a plurality of shared radiation detectors, which are among said multiple-layered radiation detectors, mounted in at least the innermost area, and used for detecting γ -rays and X-rays.